month due to an infectious process and 7 of these patients were readmitted. 36 (57%) patients had taken antibiotics within 3 months before the study.

The most common illnesses were community acquired pneumonia (CAP) 16 (25.4%), acute bronchitis (AB) 15 (23.8%), COPD exacerbation 13 (20.6%) and influenza 7 (11.1%). The most common antimicrobials prescribed were: cephalosporins 24 (26.7%), co-amoxiclav 20 (22.2%) and quinolones 17 (18.9%).

Patients with AB were not analysed because there is no optimal duration of antibiotic treatment recommended in the current scientific evidence. The remainder of the patients were analysed (48): 35 were given antibiotics for more days than the recommended evidence (15 CAP, 12 COPD exacerbation, 4 influenza, 4 other infections); 9 patients were given antibiotics as per the recommended duration (3 acute pyelonephritis, 3 influenza, 1 CAP, 1 hospital acquired pneumonia, 1 complicated cystitis); and 4 were given antibiotics for a shorter duration than recommended (1 complicated cystitis, 1 COPD exacerbation, 1 pharyngotonsillitis, 1 acute gastroenteritis).

Conclusion and relevance Nearly 75% of patients had a longer antibiotic course than the recommended evidence. This should be a priority for intervention. It is important to create antibiotic awareness, where 'shorter is better' is a 'prescriber mantra' as far as the rational use of antibiotics is concerned.

REFERENCES AND/OR ACKNOWLEDGEMENTS

Conflict of interest No conflict of interest

4CPS-246 CORONAVIRUS FIRST WAVE EFFECT ON ANTIBIOTIC CONSUMPTION AND ANTIMICROBIAL RESISTANCE

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Background and importance In the absence of evidence about the incidence of bacterial co-infection, antibiotic treatment was widely prescribed to prevent this potential complication. Increasing antibiotic consumption could have exerted an ecological pressure on microorganisms with potential clinical implications that need to be examined.

Aim and objectives The aim of this study was to analyse antibiotic consumption and antimicrobial resistant microorganism isolates during the peak incidence of the COVID-19 first wave at our hospital.

Material and methods An observational, descriptive, cross sectional study was carried out. Antibiotic consumption data for March and April 2020 and 2019 were analysed. Defined daily dose (DDD) per 100 bed days was used as the consumption indicator and changes were expressed in absolute and percentage terms. Isolates of Enterobacteriaceae (*Escherichia coli* and *Klebsiella pneumoniae*) were examined for March and April 2020 and compared with the average over 2019. Extended spectrum beta-lactamase (ESBL) producing Enterobacteriaceae were expressed in relative terms over their total isolates.

Results For the period under study, antibiotic consumption increased from 79.94 to 141.10 DDD/100 bed days in 2020, which was an increase of 77%. Macrolides and cephalosporins were among the groups of antibiotics with the highest consumption, representing 37% (52.79 DDD/100 bed days) and 32% (45.41 DDD/100 bed days) of total consumption, respectively, and almost 70% jointly. Additionally, ceftriaxone and azithromycin showed an increase in DDD/100 bed days of 4.5× (8.91 vs 39.97) and 27.4× (1.89 vs 51.90) with respect to the same period in 2019.

The share of ESBL producing *Escherichia coli* was 12% (13/111 isolates) and 23% (20/87 isolates) in March and April 2020 compared with an average of 11% (273/2494 isolates) in 2019. ESBL producing *Klebsiella pneumoniae* was 23% (8/35 isolates) and 57% (25/44 isolates) in March and April 2020 versus 24% (153/642 isolates) on average in 2019.

Conclusion and relevance During the study period, antibiotic consumption increased markedly. The increasing use of third generation cephalosporins, which have no effect on ESBL producing Enterobacteriaceae, may have contributed to the observed changes in the bacterial ecology in our hospital. As the incidence of bacterial co-infection on admission was reported to be lower than 5% and the increase in antibiotic consumption translated into selection of antibiotic resistant bacteria, it is important to properly assess antibiotic treatment for each particular case in future outbreaks of SARS-CoV-2 infections.

REFERENCES AND/OR ACKNOWLEDGEMENTS

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4CPS-247 VARIATIONS IN CONSUMPTION OF ANTIMICROBIALS IN INTERNAL MEDICINE WARDS OF HOSPITALS

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Background and importance Although there is a direct relationship between rates of antibiotic use and emergence of antimicrobial resistance in the community and in hospital, measurement of antimicrobial consumption, without further analysis of any variations observed, is inadequate to support decision making.

Aim and objectives The aim of the study was twofold: presenting variations in antimicrobial consumption in internal medicine wards and investigating potential variables in the choice of regimen.

Material and methods Anonymous data on administration of parenteral antibiotics, during 2019, in two internal medicine wards of a general hospital and one semi-autonomous (independent) internal medicine clinic, located in the same healthcare region, were collected and compared. Antibiotic consumption was recorded as daily defined doses per 100 bed days (DDDs/100 bed days). All antibacterial antibiotics were included in the analyses. Furthermore, each substance's contribution, as a percentage of the annual configuration of the total index, was calculated. Average length of stay (LOS) and regimen indications were also registered.

Results In 2019, total antibiotic consumption in the general hospital internal medicine clinics ranged from 176.53 to 184.03 DDDs/100 bed days, exhibiting a 4.5-fold difference compared with the independent clinic. Administration of 33

and 35 different antibiotics, respectively, was recorded in the general hospital clinics versus 25 in the independent clinic. Ampicillin/sulbactam, meropenem and piperacillin/tazobactam (with minor differences observed) were more often used in the general hospital, while meropenem, piperacillin/tazobactam and clindamycin were used most in the independent one. Despite the differences, the relative contribution of different antibiotics to total consumption was comparable for piperacillin/tazobactam, meropenem and ceftriaxone in all cases. Variables in the choice of regimen were mainly patient age, LOS and antibiogram. Average LOS was 10 days versus 25 days between hospitals. More than 90% of admissions in the general hospital (vs 5%) were emergency admissions.

Conclusion and relevance Only small differences in antimicrobial regimens were observed within each hospital, whereas between hospitals they varied significantly. Variables related to the general hospital environment, such as the increased probability of multiresistant pathogens (suggesting concomitant administration of two or more antibiotics) and the intensive care profile may adequately explain the observed variations. Such variables should always be considered in antibiotic stewardship programmes and/or other initiatives.

REFERENCES AND/OR ACKNOWLEDGEMENTS

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4CPS-248 APPROPRIATENESS OF THE *CLOSTRIDIUM DIFFICILE* INFECTION PRESCRIPTION PRIOR TO THE IMPLEMENTATION OF A PROTOCOL FOR ITS MANAGEMENT

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Background and importance *Clostridium difficile* disease (CDD) is the main cause of nosocomial diarrhoea.

Aim and objectives To evaluate the adequacy of treatment of CDD prior to implementation of the checklist for the diagnosis and treatment of CDD.

Material and methods This was a retrospective observational study of CDD cases in a tertiary hospital during 2019. The adequacy of treatment of positive cases was evaluated according to the checklist, considering variables for vulnerability (cancer patients, neutropenic, transplant recipients, inflammatory bowel disease or prolonged antibiotic treatment), severity (according to leucocytosis, renal function or presence of hypotension, shock or ileus), risk of recurrence (age, CDD the previous year, positive toxin or persistence of diarrhoea on the fifth day) and their treatment.

Results There were 126 cases of CDD in 100 patients, with a median age of 76 years (1–96) and 59% were women. The adequacy of the protocol was checked in 103 cases and the rest were incomplete:

- First non–severe episode/non–vulnerable patient (protocol: metronidazole → vancomycin): one case was not appropriate because it was treated with fidaxomycin before vancomycin.
- First non–severe episode/vulnerable patient (protocol: vancomycin → fidaxomycin): five cases were not adequate because they were not treated with vancomycin initially.
- First severe episode/non–vulnerable patient (protocol: vancomycin → fidaxomycin): seven cases were not appropriate because they were not treated with vancomycin initially.
- First severe episode/vulnerable patient (protocol: vancomycin → fidaxomycin → vancomycin+bezlotoxumab): one was not adequate because they were not treated with vancomycin initially.
- Fulminant (protocol: vancomycin+metronidazole IV): two cases were not appropriate as they were not initially treated with vancomycin+metronidazole IV.
- First episode and mild recurrence (protocol: vancomycin): six cases were not adequate. All should have been treated initially with vancomycin.
- First severe episode or recurrence (protocol: vancomycin or fidaxomycin±bezlotoxumab, depending on previous treatment): in four cases the treatment received was not appropriate because vancomycin is not indicated without continuing a downward pattern.

The treatment received was not appropriate in 26 (25.2%) cases.

Conclusion and relevance The percentage of patients whose treatment did not follow the protocol was considerable (26.5%). An increase in protocol deviations was observed in more complex treatments as the severity and/or vulnerability of the patient increased. Although oral metronidazole should be reserved only for the first mild episode in non-vulnerable patients, overuse was observed in all cases.

REFERENCES AND/OR ACKNOWLEDGEMENTS

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4CPS-249 SECOND GENERATION β-LACTAM/β-LACTAMASE INHIBITOR COMBINATIONS: CEFTAZIDIME–AVIBACTAM AND CEFTOLOZANE–TAZOBACTAM EXPERIENCE OF USE

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Background and importance Ceftazidime–avibactam and ceftolozane–tazobactam are two second generation cephalosporin/β-lactamase inhibitor combinations. The antimicrobial spectrum of activity includes multidrug resistant gram negative bacteria, including *Pseudomonas aeruginosa*. Ceftazidime–avibactam is also active against carbapenem resistant Enterobacteriaceae that produce *Klebsiella pneumoniae* carbapenemases. Both drugs are approved for treatment of complicated intra-abdominal infections (cIAIs), complicated urinary tract infections (cUTIs), community acquired pneumonia (CAP) and ventilator associated bacterial pneumonia (VABP).